

TABLE 1 (cont.)

SERVICE (TITLE 47 CFR RULE PART)	EVALUATION REQUIRED IF:
Amateur Radio Service (part 97)	transmitter output power > levels specified in § 97.13(c)(1) of this chapter
Local Multipoint Distribution Service (subpart L of part 101)	<p><u>non-building-mounted antennas</u>: height above ground level to lowest point of antenna < 10 m <u>and</u> power > 1640 W EIRP</p> <p><u>building-mounted antennas</u>: power > 1640 W EIRP</p> <p>LMDS licensees are required to attach a label to subscriber transceiver antennas that: (1) provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transceiver antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in § 1.1310 of this chapter.</p>

(2) Mobile and portable transmitting devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services (PCS), the Satellite Communications Services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services (ship earth stations only) and the Specialized Mobile Radio Service authorized under subpart H of part 22, part 24, part 25, part 26, part 27, part 80, and part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§ 2.1091 and 2.1093 of this chapter. Unlicensed PCS, unlicensed NII and millimeter wave devices are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§ 15.253(f), 15.255(g), and 15.319(i) and 15.407(f) of this chapter. All other mobile, portable, and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure under §§ 2.1091 and 2.1093 of this chapter except as specified in paragraphs (c) and (d) of this section.

(3) In general, when the guidelines specified in § 1.1310 are exceeded in an accessible area due to the emissions from multiple fixed transmitters, actions necessary to bring the area into compliance are the shared responsibility of all licensees whose transmitters

produce, at the area in question, power density levels that exceed 5% of the power density exposure limit applicable to their particular transmitter or field strength levels that, when squared, exceed 5% of the square of the electric or magnetic field strength limit applicable to their particular transmitter. Owners of transmitter sites are expected to allow applicants and licensees to take reasonable steps to comply with the requirements contained in § 1.1307(b) and, where feasible, should encourage co-location of transmitters and common solutions for controlling access to areas where the RF exposure limits contained in § 1.1310 might be exceeded.

(i) Applicants for proposed (not otherwise excluded) transmitters, facilities or modifications that would cause non-compliance with the limits specified in § 1.1310 at an accessible area previously in compliance must submit an EA if emissions from the applicant's transmitter or facility would result, at the area in question, in a power density that exceeds 5% of the power density exposure limit applicable to that transmitter or facility or in a field strength that, when squared, exceeds 5% of the square of the electric or magnetic field strength limit applicable to that transmitter or facility.

(ii) Renewal applicants whose (not otherwise excluded) transmitters or facilities contribute to the field strength or power density at an accessible area not in compliance with the limits specified in § 1.1310 must submit an EA if emissions from the applicant's transmitter or facility results, at the area in question, in a power density that exceeds 5% of the power density exposure limit applicable to that transmitter or facility or in a field strength that, when squared, exceeds 5% of the square of the electric or magnetic field strength limit applicable to that transmitter of facility.

(4) Transition Provisions. For applications filed with the Commission prior to **October 15, 1997**, (or January 1, 1998, for the Amateur Radio Service only), Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations, or modifications in existing facilities require the preparation of an Environmental Assessment if the particular facility, operation or transmitter would cause human exposure to levels of radiofrequency radiation that are in excess of the requirements contained in paragraphs (4)(i) - (4)(iii) of this section. These transition provisions do not apply to applications for equipment authorization or use of mobile, portable and unlicensed devices specified in paragraph (2) of this section.

(5) Existing transmitting facilities, devices and operations: All existing transmitting facilities, operations and devices regulated by the Commission must be in compliance with the requirements of paragraphs (1) - (3) of this section by September 1, 2000, or, if not in compliance, file an Environmental Assessment as specified in 47 CFR § 1.1311.

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**Part 2 - FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;
GENERAL RULES AND REGULATIONS**

1. The authority citation for part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303 and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.1091 is amended by revising the section caption, by revising paragraphs (b), (c) and (d)(3) and by adding a new paragraph (d)(4) to read as follows:

§ 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.

* * * * *

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

(c) Mobile devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications Services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 26 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth stations devices only) and part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if they operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more. Unlicensed personal communications service devices, unlicensed millimeter wave devices and unlicensed NII devices authorized under § 15.253, § 15.255, and subparts D and E of part 15 of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in § 2.1093 (b) requiring evaluation under the provisions of that section. All other mobile and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§ 1.1307(c) and 1.1307(d) of this chapter. Applications for equipment authorization of mobile and unlicensed transmitting devices subject to routine environmental evaluation must contain a statement confirming

compliance with the limits specified in paragraph (d) of this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(d) * * *

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(3) If appropriate, compliance with exposure guidelines for devices in this section can be accomplished by the use of warning labels and by providing users with information concerning minimum separation distances from transmitting structures and proper installation of antennas.

(4) In some cases, e.g., modular or desktop transmitters, the potential conditions of use of a device may not allow easy classification of that device as either mobile or portable (also see 47 CFR 2.1093). In such cases, applicants are responsible for determining minimum distances for compliance for the intended use and installation of the device based on evaluation of either specific absorption rate (SAR), field strength or power density, whichever is most appropriate.

* * * *

3. Section 2.1093 is amended by revising paragraphs (b), (c) and (d) to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: portable devices.

* * * *

(b) For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

(c) Portable devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 26 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth station devices only), part 90 of this chapter, and portable unlicensed personal communication service, unlicensed NII devices and millimeter wave devices authorized under § 15.253, § 15.255 or subparts D and E of part 15 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use. All other portable transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use,

except as specified in §§ 1.1307(c) and 1.1307(d) of this chapter. Applications for equipment authorization of portable transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

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Part 26 - GENERAL WIRELESS COMMUNICATIONS SERVICE

1. The authority citation for part 26 continues to read as follows:

AUTHORITY: 48 Stat. 1066, 1082, as amended; 47 U.S.C. §§ 154, 303. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. §§ 151-155, 301-609, unless otherwise noted.

2. Section 26.51 is amended by removing paragraph (d).

3. Section 26.52 is amended by removing paragraphs (a), (b) and (c) and by revising the section to read as follows:

§ 26.52 RF safety.

Licensees and manufacturers are subject to the radiofrequency radiation exposure requirements specified in § 1.1307(b), § 2.1091 and § 2.1093 of this chapter, as appropriate. Applications for equipment authorization of mobile or portable devices operating under this section must

contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

Part 97 - AMATEUR RADIO SERVICE

1. The authority citation for part 97 continues to read as follows:

AUTHORITY: 48 Stat. 1066, 1082, as amended; 47 U.S.C. §§ 154, 303. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. §§ 151-155, 301-609, unless otherwise noted.

2. Section 97.13 is amended by revising paragraph (c) and adding paragraphs (c)(1) and (c)(2) to read as follows:

§ 97.13 Restrictions on station location.

* * * * *

(c) Before causing or allowing an amateur station to transmit from any place where the operation of the station could cause human exposure to RF electromagnetic field levels in excess of those allowed under § 1.1310 of this chapter, the licensee is required to take certain actions.

- (1) The licensee must perform the routine RF environmental evaluation prescribed by § 1.1307(b) of this chapter, if the transmitter PEP exceeds the following limits:

Wavelength Band	Transmitter Power (watts)
MF	
160 m	500
HF	
80 m	500
75 m	500
40 m	500
30 m	425
20 m	225
17 m	125
15 m	100
12 m	75
10 m	50
VHF (all bands)	50
UHF	
70 cm	70
33 cm	150
23 cm	200
13 cm	250
SHF (all bands)	250
EHF (all bands)	250

(2) If the routine environmental evaluation indicates that the RF electromagnetic fields could exceed the limits contained in § 1.1310 of this chapter in accessible areas, the licensee must take action to prevent human exposure to such RF electromagnetic fields. Further information on evaluating compliance with these limits can be found in the FCC's OET Bulletin 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields."

APPENDIX B: MOTIONS, PETITIONS, OPPOSITIONS AND REPLIES
(ET Docket 93-62)**(1) Petitions for Reconsideration and/or Clarification of *Report and Order***

Ad-hoc Association of Parties Concerned About the Federal Communications Commission's
Radiofrequency Health and Safety Rules (Ad-hoc Association)

AirTouch Communications, Inc.

American Mobile Telecommunications Association, Inc.

American Radio Relay League, Inc.

Ameritech Mobile Communications, Inc.

AT&T Wireless Services, Inc.

BellSouth Corporation

Cellular Phone Taskforce

Department of Defense

Alan Dixon

Electromagnetic Energy Association

Ergotec Association, Inc. (considered as a Petition)

Hewlett-Packard Company

Marjorie Lundquist, Ph.D., C.I.H.

Paging Network, Inc.

Personal Communications Industry Association

U S WEST, Inc.

Other Motions (addressed in *First Memorandum Opinion and Order* in this proceeding)

Ad-hoc Association (motion to accept a late-filed petition for reconsideration)

Ad-hoc Association (motion to accept a late filed reply to an opposition to a petition for
reconsideration)

American Radio Relay League, Inc. ("Emergency Motion for Extension of Effective Date of
Rules")

American Radio Relay League ("Motion for Extension of Effective Date of Rules")

Cellular Phone Taskforce (motion to accept a late-filed opposition to petition for
reconsideration and clarification)

Oppositions/Comments

Ameritech Mobile Communications, Inc.

Arch Communications Group, Inc.

AT&T Wireless Services, Inc.

Cellular Phone Taskforce

Cellular Telecommunications Industry Association, Inc.

Electromagnetic Energy Association
David Fichtenberg (2 filings)
Marjorie Lundquist, Ph.D., C.I.H.
National Association of Broadcasters
Sobig Neher (Ex Parte submission)
RAM Mobile Data USA Limited Partnership
Wireless Cable Association International, Inc.

Replies to Opposition/Comments

Ad-hoc Association
AirTouch Communications, Inc.
Ameritech Mobile Communications, Inc.
Brooklyn Green Party
Cellular Phone Taskforce
Electromagnetic Energy Association
Holly Fournier and Mary Beth Freeman
Alan Golden
Dawn Mason, Representative, State of Washington
PageMart II, Inc.

Late-filed (Supplementary) Comments

Marjorie Lundquist, Ph.D., C.I.H.

(2) Petitions for Reconsideration or Partial Reconsideration of *First Memorandum Opinion and Order*

Ad-hoc Association of Parties Concerned About the Federal Communications Commission's
Radiofrequency Health and Safety Rules (Ad-hoc Association)
Ameritech Mobile Communications, Inc.
Cellular Phone Taskforce
Northeast Louisiana Telephone Company, Inc.

Oppositions/Comments

AirTouch Communications, Inc.
Ameritech Mobile Communications, Inc.
AT&T Wireless Services, Inc.

Replies to Opposition/Comments

Cellular Phone Taskforce Reply to Comments of AT&T Wireless Services, Inc.

Cellular Phone Taskforce Reply to Comments of Ameritech Mobile Communications, Inc.

Late-filed (Ex Parte) Comments and Petitions

Ad-hoc Association of Parties Concerned About the Federal Communications Commission's
Radiofrequency Health and Safety Rules (Ad-hoc Association)

Ameritech Mobile Communications, Inc.

Personal Communications Industry Association

APPENDIX C

Revised Final Regulatory Flexibility Analysis
Second Memorandum Opinion and Order

As required by Section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603 (RFA), an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making (Notice)* in ET Docket 93-62.²²³ The Commission sought written public comments on the proposals in the *Notice*, including on the IRFA. In the *Report and Order* in this proceeding, the Commission adopted a Final Regulatory Flexibility Analysis (FRFA).²²⁴ Petitions for reconsideration were filed in response to the *Report and Order* by seventeen parties. Several technical and legal issues have been raised in the petitions and subsequent comments. In addition, several petitions have raised questions about the original FRFA. The *First Memorandum Opinion and Order* in this proceeding, and the associated FRFA, addressed those petitions and comments requesting extension of the transition period specified in the *Report and Order* as well as the comments that were made on the original FRFA contained in the *Report and Order*.²²⁵ This *Second Memorandum Opinion and Order*, including this FRFA, addresses the other issues raised in the petitions. The FRFA conforms to the RFA, as amended by the Contract With America Advancement Act of 1996 (CWAAA), Pub. L. No. 104-121, 110 Stat. 847 (1996).²²⁶

I. Need for and Purpose of this Action:

The National Environmental Policy Act (NEPA) of 1969 requires agencies of the Federal Government to evaluate the effects of their actions on the quality of the human environment. To meet its responsibilities under NEPA, the Commission has adopted revised radiofrequency (RF) exposure guidelines for purposes of evaluating potential environmental effects of RF electromagnetic fields produced by FCC-regulated facilities. The new guidelines reflect more recent scientific studies of the biological effects of RF electromagnetic fields. Use of these new guidelines will ensure that the public and workers receive adequate protection from exposure to potentially harmful RF electromagnetic fields. This *Second Memorandum Opinion and Order* addresses a number of concerns that were raised in petitions and comments received in response to the *Report and Order*.

²²³ See *Notice of Proposed Rule Making*, ET Docket No. 93-62, 8 FCC Rcd 2849 (1993).

²²⁴ See Appendix A to *Report and Order*, ET Docket 93-62, released August 1, 1996, FCC 96-326.

²²⁵ See *First Memorandum Opinion and Order*, ET Docket No. 93-62, released December 24, 1996, FCC 96-487, 11 FCC Rcd 17512 (1997).

²²⁶ Subtitle II of the CWAAA is "The Small Business Regulatory Enforcement Fairness Act of 1996" (SBREFA), codified at 5 U.S.C. § 601 et seq.

II. Summary of Issues Raised by the Public Comments in Response to the Initial Regulatory Flexibility Analysis (IRFA):

No comments were filed in direct response to the IRFA. In general comments on the *Notice*, however, some commenters raised issues that might affect small entities. These issues were discussed in the FRFA contained in the *Report and Order* in this proceeding.

III. Summary of Issues Raised regarding the Final Regulatory Flexibility Analysis (FRFA) by the Petitions, Motions, and Comments in Response to the *Report and Order*:

The American Radio Relay League, Inc., Paging Network, Inc., and the Personal Communications Industry Association raised concerns in their petitions, motions and comments regarding the FRFA that was associated with the *Report and Order*. Those concerns were addressed in the revised FRFA contained in the *First Memorandum Opinion and Order* in this proceeding.

IV. Description and estimate of the Small Entities Subject to the Rules:

The rules being adopted in this *Second Memorandum Opinion and Order* apply to twelve industry categories and services. All but one of these industry categories and services was described in the FRFA accompanying the *First Memorandum Opinion and Order* in this proceeding.²²⁷ The RFA generally defines the term "small business" as having the same meaning as the term "small business concern" under the Small Business Act, 15 U.S.C. § 632. Based on that statutory provision, we will consider a small business concern one which (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA). The RFA SBREFA provisions also apply to nonprofit organizations and to governmental organizations. Since the Regulatory Flexibility Act amendments were not in effect until the record in this proceeding was closed, the Commission was unable to request information regarding the number of small business within each of these services or the number of small business that would be affected by this action. We have, however, made estimates based on our knowledge about applications that have been submitted in the past. To the extent that a government entity may be a licensee or an applicant, the impact on those entities is included in the estimates for small businesses below.

Under the new rules adopted in the *Report and Order* and in this *Second Memorandum Opinion and Order*, many radio services are categorically excluded from having to determine compliance with the new RF exposure limits. This exclusion is based on a determination that there is little potential for these services causing exposures in excess of the limits. Within the following services that are not categorically excluded in their entirety, many transmitting facilities are categorically excluded based on antenna location and power.

²²⁷ See Note 198, at Appendix C.

These categorical exclusions significantly reduce the burden associated with these rules, and may reduce the impact of these rules on small businesses. Furthermore, the extension of the transition periods contained in the *First Memorandum Opinion and Order* will reduce the impact on applicants, particularly small businesses, by allowing them adequate time to understand the new requirements and ensure that their facilities are in compliance with them in a orderly and reasonable manner.

As noted above, descriptions and estimates of all of the categories and services for small entities subject to our rules, except one, were previously given in the FRFRA that accompanied the *First Memorandum Opinion and Order*. Therefore, that document should be consulted for this information. Information on the one additional category not included in the earlier FRFA, radiofrequency devices, is given below. Minor edits were also made in the section of the previous FRFA for satellite communications services, and the revised section is also given below.

A. Satellite Communications Services

The Commission has not developed a definition of small entities applicable to satellite communications licensees. Therefore, the applicable definition of small entity is the definition under the Small Business Administration (SBA) rules applicable to Communications Services, Not Elsewhere Classified. This definition provides that a small entity is expressed as one with \$11.0 million or less in annual receipts.²²⁸

Because the Regulatory Flexibility Act amendments were not in effect until the comment period for this proceeding was closed, the Commission was unable to request information regarding the number of licensees in the international services discussed below that meet this definition of a small business. Thus, we are providing an estimate of licensees that constitute a small business.

Fixed Satellite Earth Stations. Fixed satellite earth stations include international and domestic earth stations operating in the 4/6 GHz, 11/12/14 GHz and 20/30 GHz bands. There are approximately 4200 earth station authorizations, a portion of which are Fixed Satellite Earth Stations. Although we were unable to request the revenue information, we estimate that some of the licensees of these earth stations would constitute a small business under the SBA definition.

Fixed Satellite Small Earth Stations. Small transmit/receive earth stations operate in the 4/6 GHz frequency bands with antennas that are two meters or less in diameter. There are 4200 earth station authorizations, a portion of which are Fixed Satellite Small Earth Stations. Although we were unable to request the revenue information, we estimate that some

²²⁸ 13 CFR § 121.201, Standard Industrial Classification (SIC) Code 4899.

of the fixed satellite small earth stations would constitute a small business under the SBA definition.

Fixed Satellite Very Small Aperture Terminal (VSAT) Systems. VSAT systems operate in the 12/14 GHz frequency bands. Although various size small aperture antenna earth-stations may be used, all stations of a particular size must be technically identical. Because these stations operate on a primary basis, frequency coordination with terrestrial microwave systems is not required. Thus, a single "blanket" application may be filed for a specified number of small antennas and one or more hub stations. The Commission has processed 377 applications for fixed satellite VSAT systems. At this time, we are unable to make a precise estimate of the number of small businesses that are VSAT system licensees and could be impacted by this action.

Mobile Satellite Earth Stations. Mobile satellite earth stations are intended to be used while in motion or during halts at unspecified points. These stations operate as part of a network that includes a fixed hub station or stations. The network may provide a variety of land, maritime and aeronautical voice and data services. There are 8 mobile satellite licensees. At this time, we are unable to make a precise estimate of the number of small businesses that are mobile satellite earth station licensees and could be impacted by this action.

Radio Determination Satellite Earth Stations. A radio determination satellite earth station is used in conjunction with a radio determination satellite service (rdss) system for the purpose of providing position location information. These stations operate as part of a network that includes a fixed hub station or stations and operate in the frequency bands (1610 - 1626.5 MHz and 2483.5 - 2500 MHz) allocated to rdss. At this time, we are unable to make a precise estimate of the number of small businesses that are radio determination satellite earth station licensees and could be impacted by the forfeiture guidelines.

It should be noted that in most of the satellite areas discussed above, the Commission issues one license to an entity but generally issues blanket license authority for thousands or even hundreds of thousands of earth stations or hand held transceivers. Overall, the Commission receives about 600 applications for satellite facilities per year. All applicants for satellite earth stations (except for receive-only stations) must make a determination of compliance with the RF exposure limits, based on calculations or measurements.

B. Radiofrequency Devices

The radiofrequency devices affected by this rulemaking are low power, unlicensed transmitters that will be used to provide, on millimeter wave frequencies, a variety of services, including vehicle collision avoidance and high data rate/short range wireless data communications. Unlicensed personal communications service (PCS) transmitters are also radiofrequency devices. Radiofrequency devices are subject to compliance with the new RF

radiation requirements at the time of equipment authorization. Therefore, it will be the equipment manufacturers and importers who will be affected by this action.

We expect most of the firms that would be interested in producing millimeter wave and unlicensed PCS devices will be large businesses. We note that Ford Motor and Hewlett Packard have expressed interest in millimeter wave devices and filed comments in this proceeding. In addition, Motorola and Ericsson, both large equipment manufacturers, have expressed interest in manufacturing unlicensed PCS devices. Nevertheless, it is conceivable that small businesses will also want to manufacture these devices.

The Commission has not developed a definition of small entities applicable to radiofrequency devices. Therefore, the applicable definition of small entity is the definition under the SBA applicable to the "Communications Services, Not Elsewhere" category. A small millimeter wave device or unlicensed PCS entity under this definition is one with less than \$11.0 million in annual receipts.²²⁹

The Commission has not yet authorized any millimeter wave devices, and has authorized fewer than fifteen unlicensed PCS devices. Both these services are new, so we really don't know how many applications for equipment authorization we may receive, nor how many small manufacturers may be interested in producing these products. Since the Regulatory Flexibility Act amendments were not in effect until the record in this proceeding was closed, the Commission was unable to request information regarding the number of small businesses in this category. The Census Bureau estimates indicate that of the 848 firms in the "Communications Services, Not Elsewhere" category, 775 are small businesses. Based on this information, as well as our past experience in granting equipment authorization for other types of radiofrequency devices, we estimate that 50 percent of the applications for millimeter wave and unlicensed PCS devices will be from small businesses.

The Commission anticipates that approximately 30 applications will be filed annually for devices that operate in the millimeter band and unlicensed PCS spectrum. An initial determination of compliance with our new RF guidelines will be required for: 1) applications for unlicensed PCS devices that do not meet our definition for a portable device contained in 47 CFR § 2.1093(b) and that operate with 1.5 watts effective radiated power (ERP) or more; 2) applications for portable unlicensed PCS devices; 3) applications for unlicensed millimeter wave devices that do not meet our definition for a portable device and that operate with 3 watts ERP or more; and 4) applications for portable unlicensed millimeter wave devices. We anticipate that 20 of the 30 applications filed will meet these requirements and need to undergo an initial determination of compliance. Of these devices, ten will require specific absorption rate (SAR) modeling or measurement, which adds cost to the authorization process.

²²⁹ 13 CFR § 121.201, Standard Industrial Classification (SIC) Code 4899.

V. Summary of Projected Reporting, Recordkeeping and Other Compliance Requirements:

No new reporting, recordkeeping, or other compliance requirements are contained in this *Second Memorandum Opinion and Order*.

VI. Steps Taken to Minimize the Economic Impact on Small Entities:

We have made every effort to devise ways to minimize the impact of the new RF exposure requirements on small entities, while protecting the health and safety of the public. We have incorporated substantial flexibility in the procedures to make compliance as minimally burdensome as possible.

In particular, we took the following steps in the *Report and Order* to ease the impact on small businesses:

1. We created categorical exclusions that require only those transmitters that appear to have the highest potential to create a significant environmental effect to perform an environmental evaluation.
2. We indicated that we would revise OST Bulletin No. 65 in the near future to provide guidance for determining compliance with FCC-specified RF limits. This should be of particular assistance to small businesses since it will provide straightforward information that should allow a quick understanding of the requirements and a quick assessment of the potential for compliance problems without the need for an expensive consultant or measurement.
3. We allowed various methods for ensuring compliance with RF limits such as fencing, warning signs, labels, and markings, locked doors in roof-top areas, and the use of personal monitors and RF protective clothing in an occupational environment.
4. We rejected our initial proposal to adopt induced and contact currents limits due to the lack of reliable equipment available.
5. We specified a variety of acceptable testing methods and procedures that may be used to determine compliance. This will allow each small business to choose a procedure that best meets its needs in the manner that is least burdensome to it.
6. We have always allowed multiple transmitter sites, i.e., antenna farms, to pool their resources and have only one study done for the entire site. This is very common at sites that have multiple entities such as TV, FM, paging, cellular, etc. In most circumstances, rather than each licensee hiring a separate consultant and submitting a study showing their compliance with the guidelines, one consulting radio technician or radio engineer can be hired

by the group of licensees. The consultant surveys the entire site for compliance and gives his recommendations and findings to each of the licensees at the site. The licensees can then use the findings to show their compliance with the guidelines. In this way the cost of compliance is minimized as no one licensee has to pay the entire consulting fee, rather just a portion of it.

In this *First Memorandum Opinion and Order*, we took the following additional steps to reduce the burden on small businesses and organizations:

1. We extended the transition period for station applicants to come into compliance with the new requirements. This will give licensees, and applicants for new stations many of which may be small businesses, more time to learn the nature of the new requirements, make studies to determine whether they comply, and take steps to come into compliance if necessary.

2. We decided to permit the required changes in the ARS examinations to be made as the examinations are being routinely revised. This ensures that a minimal burden is put on the small organizations acting as VECs.

In this *Second Memorandum Opinion and Order*, we have taken these additional steps to reduce the burden on small businesses and organizations:

1. We categorically excluded from routine environmental evaluation certain non-portable, unlicensed millimeter wave and PCS devices. This eliminates the need for these devices to undergo detailed evaluation before the devices undergo equipment authorization.

2. We increased the responsibility threshold, above which licensees at multiple transmitter locations must share responsibility for addressing RF exposure non-compliance problems, from 1% to 5%. We believe that a 5% responsibility threshold will offer relief to relatively low-powered site occupants who do not contribute significantly to the non-compliance and, at the same time, provide for the appropriate allocation of responsibility among major site emitters. Similarly, we are raising the filing thresholds, above which applicants must file an EA if emissions from the applicant's transmitter or facility would result in a field strength or power density in excess of our limits, from 1% to 5%.

Report to Congress: The Commission shall send a copy of this Final Regulatory Flexibility Analysis, along with this Report and Order, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. § 801(a)(1)(A). A copy of this FRFA will also be published in the Federal Register.

APPENDIX D

INITIAL REGULATORY FLEXIBILITY ANALYSIS

Notice of Proposed Rulemaking

As required by Section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the expected impact on small entities of the policies and rules proposed in this *Notice of Proposed Rulemaking (NPRM)*. Written public comments are requested on the IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *NPRM* as provided in section IV(D)(3).

Reason for Action: This rulemaking proceeding was initiated to secure comment on procedures for reviewing requests for relief of State and local regulations concerning the siting of personal wireless service facilities that are based on the environmental effects of RF emissions pursuant to Section 332(c)(7)(B)(v) of the Communications Act.²³⁰ This Section of the Communications Act was created with the passage of Section 704 the Telecommunications Act of 1996.²³¹

Objectives: The procedures set forth in the *NPRM* are designed to provide a balanced method for reviewing requests for relief and to ensure that personal wireless service providers are permitted to seek the full relief afforded them under the Communications Act. At the same time, the Commission seeks to provide an opportunity for interested parties to argue that a specific wireless facility will not comply with the Commission's RF guidelines. In addition, the Commission believes that the procedures adopted as a result of this proceeding will allow for expedited review of requests for relief, as well as, much-needed guidance on this important issue.

Legal Basis: The proposed action is authorized under Sections 4(i), 303(g), 303(r) and 332(c)(7) of the Communications Act of 1934, as amended.²³²

Reporting, Recordkeeping, and Other Compliance Requirements: The proposals under consideration in the *NPRM* include the possibility of imposing a new filing requirement for parties seeking relief pursuant to Section 332(c)(7)(B)(v) of the Communications Act. The filing requirement would be used to determine whether to grant relief from the State or local regulation in question. This filing will be in the form of a request for declaratory ruling filed

²³⁰ 47 U.S.C. § 332(c)(7)(B)(v).

²³¹ Pub. L. No. 104-104, 110 Stat. 56 (1996).

²³² 47 U.S.C. §§ 154(i), 303(g), 303(r) and 332(c)(7), as amended.

pursuant to Section 1.2 of the Commission's Rules.²³³ Only interested parties or those parties demonstrating the requisite standing will be permitted to participate in the proceeding. The *NPRM* also seeks comment on whether to adopt either a simple certification of compliance or more detailed demonstration of compliance that personal wireless service providers will be required to submit to State and local governments as evidence of RF emissions compliance.

We estimate that the average burden on the party seeking relief will be approximately two hours to prepare the request for relief and file it with the Commission. We estimate an equal amount of time for the State or local authority or other interested party (referred to jointly herein as the "respondents") to prepare and file their comments on and/or oppositions to the preemption request. We estimate that 75 percent of both the requesting parties and the respondents (which may include small businesses) will contract out the burden of preparing their filings. We estimate that it will take approximately 1 hour to coordinate information with those contractors. The remaining 25 percent of parties filing requests and respondents (which may include small businesses) are estimated to employ in-house staff to provide the information. We estimate that parties requesting relief and respondents that contract out the task of preparing their filings will use an attorney or engineer (average \$200 per hour) to prepare the information.

We estimate that the average burden on the party required to prepare a simple certification of RF compliance to be less than one hour. We estimate that the average burden on the party required to prepare a more detailed demonstration of RF compliance to be approximately 5 hours. We estimate that 75 percent of these parties (which may include small businesses) will contract out the burden of prepare their filings. We estimate that it will take approximately 1 hour to coordinate information with those contractors. The remaining 25 percent of parties (which may include small businesses) are estimated to employ in-house staff to provide the information. We estimate that parties that contract out the task of preparing their filings will use an engineer (average \$200 per hour) to prepare the information.

Federal Rules Which Overlap, Duplicate or Conflict With These Rules: Section 332(c)(7)(B)(iv)-(v) provides the authority for the Commission to consider requests for relief of state and local actions.²³⁴

Description, Potential Impact, and Number of Small Entities Involved:

The proposed rules in this *NPRM* will apply to all small businesses which avail themselves of these new procedures, including small businesses defined as providers of "personal wireless services" that seek relief from State and local regulations based upon the

²³³ 47 C.F.R. § 1.2.

²³⁴ 47 U.S.C. § 332(c)(7)(B)(iv)-(v).

environmental effects of RF emissions. The Commission is required to estimate in its Final Regulatory Flexibility Analysis the number of small entities to which these new procedures will apply, provide a description of these entities, and assess the impact of the rule on such entities. To assist the Commission in this analysis, commenters are requested to provide information regarding how many total providers of "personal wireless services," existing and potential, will be considered small businesses. "Small business" is defined as having the same meaning as the term "small business concern" under the Small Business Act.²³⁵ Based on that statutory provision, we will consider a small business concern one which (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA). We seek comment as to whether this definition is appropriate in this context. Additionally, we request each commenter to identify whether it is a small business under this definition. If the commenter is a subsidiary of another entity, this information should be provided for both the subsidiary and the parent corporation or entity.

The Commission has not yet developed a definition of small entities which respect to reviewing requests for relief pursuant to Section 332(c)(7)(B)(v) of the Communications Act. Therefore, the applicable definition of small entity is the definition under the SBA applicable to the "Communications Services, Not Elsewhere" category. The Census Bureau estimates indicate that of the 848 firms in the "Communications Services, Not Elsewhere" category, 775 are small businesses. While the Commission anticipates receiving requests for relief filed pursuant to Section 332(c)(7)(B)(v) of the Communications Act, it is not possible to predict how many will be filed or what percentage of these will be filed by small entities.

Cellular Radio Telephone Service

The Commission has not developed a definition of small entities applicable to cellular licensees. Therefore, the applicable definition of small entity is the definition under the Small Business Administration (SBA) rules applicable to radiotelephone companies. This definition provides that a small entity is a radiotelephone company employing fewer than 1,500 persons.²³⁶ The size data provided by the SBA does not enable us to make a meaningful estimate of the number of cellular providers which are small entities because it combines all radiotelephone companies with 500 or more employees.²³⁷ We therefore used the 1992 Census of Transportation, Communications, and Utilities, conducted by the Bureau of the Census, which is the most recent information available. That census shows that only 12 radiotelephone firms out of a total of 1,178 such firms which operated during 1992 had 1,000

²³⁵ 15 U.S.C. § 632.

²³⁶ 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 4812.

²³⁷ U. S. Small Business Administration 1992 Economic Census Employment Report, Bureau of the Census, U.S. Department of Commerce, SIC Code 4812 (radiotelephone communications industry data adopted by the SBA Office of Advocacy).

or more employees.²³⁸ Therefore, even if all 12 of these large firms were cellular telephone companies, all of the remainder were small businesses under the SBA's definition. We assume that, for purposes of our evaluations and conclusions in this IRFA, all of the current cellular licensees are small entities, as that term is defined by the SBA. Although there are 1,758 cellular licenses, we do not know the number of cellular licensees, since a cellular licensee may own several licenses.

The rules we are proposing would permit a cellular licensee to seek relief from the Commission for an adverse State or local regulation that is based upon environmental effects of RF emissions. Since most cellular licensees have constructed their facilities, we anticipate receiving only a small number of such requests from cellular licensees and that all of these would be small entities.

Personal Communications Service

The broadband PCS spectrum is divided into six frequency blocks designated A through F. Pursuant to 47 C.F.R. § 24.720(b), the Commission has defined "small entity" for Blocks C and F licensees as firms that had average gross revenues of less than \$40 million in the three previous calendar years. This regulation defining "small entity" in the context of broadband PCS auctions has been approved by the SBA.²³⁹

The Commission has auctioned broadband PCS licenses in all of its spectrum blocks A through F. We do not have sufficient data to determine how many small businesses under the Commission's definition bid successfully for licenses in Blocks A and B. As of now, there are 90 non-defaulting winning bidders that qualify as small entities in the Block C auction and 93 non-defaulting winning bidders that qualify as small entities in the D, E, and F Block auctions. Based on this information, we conclude that the number of broadband PCS licensees that would be affected by the proposals in this *NPRM* includes the 183 non-defaulting winning bidders that qualify as small entities in the C, D, E and F Block broadband PCS auctions.

The Commission expects to receive a significant number of requests for relief filed pursuant to Section 332(c)(7)(B)(v) involving broadband PCS licensee, many of whom may be small entities. However, it is not possible to estimate the exact number that will be filed.

Paging and Radiotelephone Service, and Paging Operations

²³⁸ U.S. Bureau of the Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications, and Utilities, UC92-S-1, Subject Series, Establishment and Firm Size, Table 5, Employment Size of Firms: 1992, SIC Code 4812 (issued May 1995).

²³⁹ See Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, PP Docket No. 93-253, *Fifth Report and Order*, 9 FCC Rcd 5532, 5581-84 (1994).

Since the Commission has not yet approved a definition for paging services, we will utilize the SBA's definition applicable to radiotelephone companies, i.e., an entity employing less than 1,500 persons.

The Commission anticipates that a total of 15,531 non-nationwide geographic area licenses will be granted or auctioned. The geographic area licenses will consist of 3,050 MTA licenses and 12,481 EA licenses. In addition to the 47 Rand McNally MTAs, the Commission is licensing Alaska as a separate MTA and adding three MTAs for the U.S. territories, for a total of 51 MTAs. No auctions of paging licenses has been held yet, and there is no basis to determine the number of licenses that will be awarded to small entities. Given the fact that nearly all radiotelephone companies have fewer than 1,000 employees, and that no reliable estimate of the number of prospective paging licensees can be made, we assume, for purposes of this IRFA, that all the 15,531 geographic area paging licenses will be awarded to small entities, as that term is defined by the SBA.

We estimate that a significant number of paging licensees may file requests for relief pursuant to Section 332(c)(7)(B)(v) and that all of these will be small entities.

Specialized Mobile Radio

Pursuant to 47 C.F.R. § 90.814(b)(1), the Commission has defined "small entity" for geographic area 800 MHz and 900 MHz SMR licenses as firms that had average gross revenues of less than \$15 million in the three previous calendar years. This regulation defining "small entity" in the context of 800 MHz and 900 MHz SMR has been approved by the SBA.²⁴⁰

The proposals set forth in the *NPRM* apply to SMR providers in the 800 MHz and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR service, nor how many of these providers have annual revenues of less than \$15 million. Furthermore, we are not able to estimate how many SMR providers will seek preemption pursuant to Section 332(c)(7)(B)(v) of the Communications Act.

The Commission recently held auctions for geographic area licenses in the 900 MHz SMR band. There were 60 winning bidders who qualified as small entities under the Commission's definition in the 900 MHz auction. Based on this information, we conclude

²⁴⁰ See Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and the 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool, PR Docket No. 89-553, *Second Order on Reconsideration and Seventh Report and Order*, 11 FCC Rcd 2639, 2693-702 (1995); Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket No. 93-144, *First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rulemaking*, 11 FCC Rcd 1463 (1995).

that the number of geographic area SMR licensees affected by the proposals set forth in this *NPRM* includes these 60 small entities.

No auctions have been held for 800 MHz geographic area SMR licenses. Therefore, no small entities currently hold these licenses. A total of 525 licenses will be awarded for the upper 200 channels in the 800 MHz geographic area SMR auction. However, the Commission has not yet determined how many licenses will be awarded for the lower 230 channels in the 800 MHz geographic area SMR auction. There is no basis to estimate, moreover, how many small entities within the SBA's definition will win these licenses. Given the facts that nearly all radiotelephone companies have fewer than 1,000 employees and that no reliable estimate of the number of prospective 800 MHz licensees can be made, we assume, for purposes of our evaluations and conclusions in this IRFA, that all of the licenses will be awarded to small entities, as that term is defined by the SBA.

Unlicensed Personal Communications Services and Wireless Exchange Access Carriers

Section 332(c)(7)(C)(i) of the Communications Act includes "unlicensed wireless services" and "common carrier wireless exchange access services" in the definition of "personal wireless services" for which relief may be sought under Section 332(c)(7)(B)(v). We presently have no data on the number of providers of unlicensed wireless services or common carrier wireless exchange access services.

Significant Alternatives Minimizing the Impact on Small Entities Consistent with the Stated Objectives: The proposals advanced in the *NPRM* are designed to permit personal wireless service providers with the opportunity to seek relief pursuant to Section 332(c)(7)(B)(v) of the Communications Act. The impact on small entities in the proposals in the *NPRM* is the opportunity to seek such relief. These procedures were designed to have a minimal impact on all personal wireless providers, including small entities, and to provide for an balanced and expedited method for reviewing such requests. The Commission believes that such procedures shall help to attain the Congressional objective of ensuring that small businesses have an opportunity to participate in the provision of wireless services by enabling small businesses to overcome entry barriers in the provision of such services.

This *NPRM* solicits comments on a variety of proposals discussed herein. Any significant alternatives presented in the comments will be considered.